



PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Atsushi SANO et al.

Group Art Unit: 1795

Application No.: 10/591,176

Examiner: K. TURNER

Filed: August 30, 2006

Docket No.: 129277

For: DIRECT ALCOHOL FUEL CELL AND METHOD FOR PRODUCING SAME

DECLARATION UNDER 37 C.F.R. §1.132

I, Atsushi Sano, a citizen of JAPAN, hereby declare and state:

1. I have a Ph.D in Chemistry which was conferred upon me by the University of Kyoto in Kyoto, Japan, in 2000.
2. I have been employed by TDK Corporation since 2000, and I have had a total of 9 years of work and research experience in electrochemical devices.
3. I am a named inventor in the above-captioned patent application.
4. I and/or those under my direct supervision and control have conducted the following tests: The fuel cell of Additional Examples 1 and 2 were prepared in the same manner as in Example 1, which was prepared in accordance with the present invention (refer to paragraphs [0111]-[0113] of the present application), except for using coating liquid for forming a cathode catalyst layer wherein the coating liquid is made by compounding the materials indicated in Table 1 below in the indicated mass ratios. Example 1 of the present application is indicated below. Additional Example 1 uses cation exchange resin instead of anion exchange resin, and Additional Example 2 does not use anion exchange or cation exchange resin.

[Table 1]

	Silver-carrying carbon	8-mass% quaternized polyvinylpyridine (manufactured by Aldrich)/methanol solution (anion exchange resin solution)	5-mass% Nafion solution (manufactured by Aldrich) (cation exchange resin solution)	Water	2-propanol
Example 1	1	4	0	1	5
Additional Example 1	1	0	6.4	1	5
Additional Example 2	1	0	0	1	5

As to the obtained fuel cell, Evaluations 1 and 2 of fuel cell indicated in Paragraphs [0114] and [0115] of the present application were conducted to obtain the maximum value of output density of that time. The results are shown in Table 2 below.

When the fuel cells were disassembled after Evaluation 1 and after Evaluation 2 to check the presence of Ag corrosion, a severe Ag corrosion was confirmed in Additional Examples 1 and 2. On the other hand, no Ag corrosion was confirmed in Example 1.

[Table 2]

	Maximum output density (mW-cm ⁻²)		Ag corrosion
	Evaluation 1	Evaluation 2	
Example 1	5	8	No corrosion
Additional Example 1	0.7	1	Corrosion is present
Additional Example 2	1.2	1.3	Corrosion is present

I hereby declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine and/or imprisonment under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing therefrom.

Date:

2009.12.17

Atsushi Sano

Atsushi Sano